IN THE CLAIMS:

1. (Currently Amended) A programmable sensor array having a plurality of programmable cells, each of the cells comprising:

a programmable module of configurable logic blocks; and

a sensor element operatively coupled to the programmable module, wherein the programmable module is programmable to perform logic functions and in use the sensor element provides a signal to the programmable module, the signal being dependent upon variations in an ambient condition monitored by the sensor element.

2. (Original) A programmable sensor array, as claimed in claim 1, further including analogue module operatively coupling the programmable module to the sensor element.

3. (Original) A programmable sensor array, as claimed in claim 2, wherein the sensor element is an image sensor element.

4. (Original) A programmable sensor array, as claimed in claim 3, wherein the image sensor element is pixel element.

5. (Original) A programmable sensor array, as claimed in claim 1, wherein the sensor element and programmable module are in a stacked relationship.

6. (Original) A programmable sensor array, as claimed in claim 2, wherein the sensor element, programmable module and analogue module are in a stacked relationship.

7. (Original) A programmable sensor array, as claimed in claim 2, wherein the analogue module is sandwiched between the sensor element and programmable module.

8. (Original) A programmable sensor array, as claimed in claim 2, wherein the sensor element is formed on an upper semiconductor substrate.

9. (Original) A programmable sensor array, as claimed in claim 8, wherein the programmable module is formed on a lower semiconductor substrate.

10. (Original) A programmable sensor array, as claimed in claim 9, wherein the analogue module is formed on an intermediate semiconductor substrate sandwiched between the upper semiconductor substrate and lower semiconductor substrate.

11. (Cancelled)

12. (Currently Amended) A programmable sensor array, as claimed in claim [~~11~~] 1, wherein the programmable module forms part a field programmable logic array.

13. (Original) A programmable sensor array, as claimed in claim 2, wherein in plan view the sensor element is directly aligned with at least part of the programmable module.

14. (Original) A programmable sensor array, as claimed in claim 13, wherein in plan view the sensor element is in direct alignment with the programmable module.

15. (Original) A programmable sensor array, as claimed in claim 14, wherein the sensor element is directly aligned with at least part of the analogue module.

16. (Original) A programmable sensor array, as claimed in claim 15, wherein in plan view the sensor element is in direct alignment with the analogue module.

17. (Original) A programmable sensor array, as claimed in claim 2, wherein the cells are operatively coupled to input-output ports thereby allowing communication of the sensor array with external electronic circuitry.

18. (Original) A programmable sensor array, as claimed in claim 2, wherein the analogue module is an analogue to digital converter.

19. (Original) A programmable sensor array, as claimed in claim 2, wherein the analogue module includes a differential amplifier or a comparator.

20. (Original) A programmable sensor array, as claimed in claim 2, wherein the analogue module includes a comparator.

21. (Currently Amended) A programmable sensor array package having a plurality of programmable cells, each of the cells comprising:

a programmable module of configurable logic blocks formed on a lower semiconductor substrate; and

a sensor element operatively coupled to the programmable module, the sensor element being formed on an upper a semiconductor substrate and the sensor element and programmable module being in a stacked relationship.

22. (Original) A programmable sensor array package, as claimed in claim 21, further including an analogue module operatively coupling the programmable module to the sensor element.

23. (Original) A programmable sensor array package, as claimed in claim 22, wherein the analogue module is formed on an intermediate semiconductor substrate sandwiched between the upper semiconductor substrate and lower semiconductor substrate.